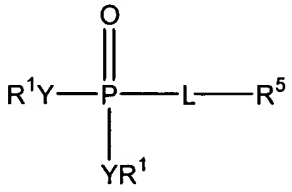
AMENDMENTS

In the Claims

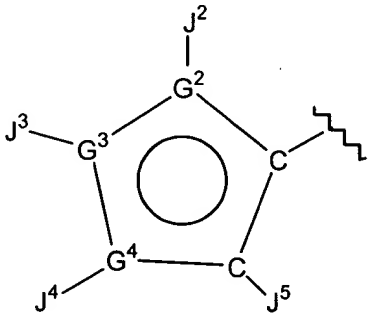
Please amend the claims as indicated below. A complete set of all claims previously submitted, including the status for each claim, immediately follows below.

1. (Currently Amended) A compound of formula (I):



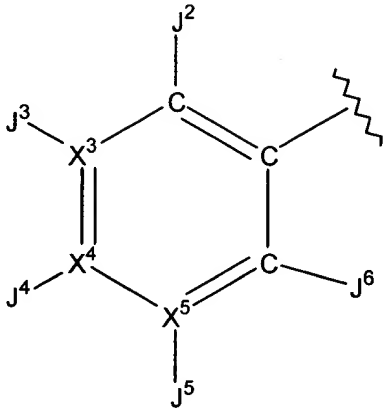
(I)

wherein R^5 is selected from the group consisting of:



I (a)

and



I (b)

wherein:

G^2 is selected from the group consisting of C, O, and S;

G^3 and G^4 are independently selected from the group consisting of C, N, O, and S;

wherein a) not more than one of G^2, G^3, and G^4 may be O, or S; b) when G^2 is O or S, not more than one of G^3 and G^4 is N; c) at least one of G^2, G^3, and G^4 is C; and d) G^2, G^3, and G^4 are not all C;

X^3, X^4, and X^5 are independently selected from the group consisting of C and N, wherein no more than two of X^3, X^4, and X^5 may be N;

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of -H, $-NR^4_2$, $-CONR^4_2$, $-CO_2R^3$, halo, $-S(O)_2NR^4_2$, $-S(O)R^3$, $-SO_2R^3$, alkyl, alkenyl, alkynyl, alkylenearyl, perhaloalkyl, haloalkyl, aryl, heteroaryl, alkylene-OH, $-C(O)R^{11}$, $-OR^{11}$, -alkylene-NR^4_2, -alkylene-CN, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NO_2$, $-NHC(S)NR^4_2$, and $-NR^{18}COR^2$;

L is selected from the group consisting of:

i) a linking group having 2-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –furanyl-, -thienyl-, -pyridyl-, -oxazolyl-, -imidazolyl-, ~~-phenyl-,~~ -pyrimidinyl-, –pyrazinyl-, and -alkynyl-, all of which may be optionally substituted; and

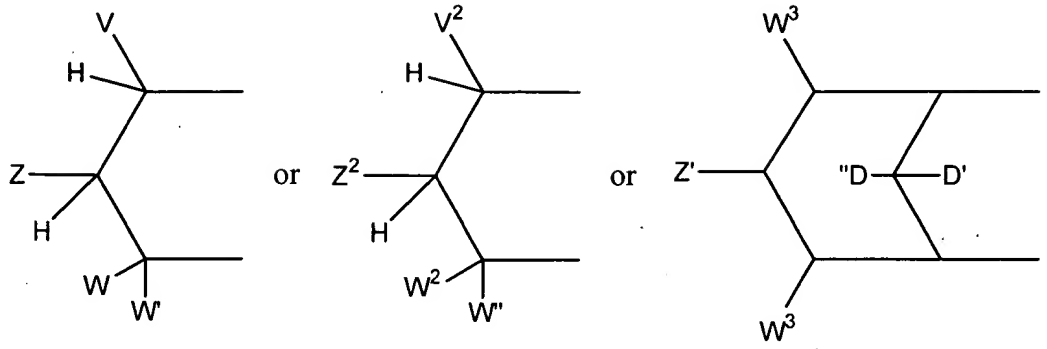
ii) a linking group having 3-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –alkylenecarbonylamino-, -alkyleneaminocarbonyl-, ~~-alkyleneoxycarbonyl-,~~ and -alkyleneoxy-, ~~and -alkyleneoxyalkylene-,~~ all of which may be optionally substituted;

Y is independently selected from the group consisting of -O-, and $-NR^6$-;

when Y is -O-, then R^1 attached to -O- is independently selected from the group consisting of -H, alkyl, optionally substituted aryl, optionally substituted heterocyclic alkyl ~~alicyclic~~ where the cyclic moiety contains a carbonate or thiocarbonate, optionally substituted arylalkylene-, $-C(R^2)_2OC(O)NR^2_2$, $-NR^2$-C(O)-R^3, $-C(R^2)_2$-$OC(O)R^3$, $-C(R^2)_2$-O-$C(O)OR^3$, $-C(R^2)_2OC(O)SR^3$, -alkylene-S-C(O)-R^3, -alkylene-S-S-alkylenehydroxy, and -alkylene-S-S-S-alkylenehydroxy,

when one Y is $–NR^6$-, and R^1 attached to it is $–(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other YR^1 is selected from the group consisting of $–NR^{15}R^{16}$, $-OR^7$, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14};

or when either Y is independently selected from -O- and $-NR^6$-, then together R^1 and R^1 are -alkylene-S-S-alkylene- to form a cyclic group, or together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2NH$aryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NH$aryl, $-CH_2$aryl; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy,

alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

each R^4 is independently selected from the group consisting of -H, alkylene, -alkylenearyl and aryl, or together R^4 and R^4 are connected via 2-6 atoms, optionally including one heteroatom selected from the group consisting of O, N, and S;

R^6 is selected from the group consisting of -H, lower alkyl, acyloxyalkyl, aryl, aralkyl, alkyloxycarbonyloxyalkyl, and lower acyl, or together with R^{12} is connected via 1-4 carbon atoms to form a cyclic group;

R^7 is lower R^3;

each R^9 is independently selected from the group consisting of -H, alkyl, aralkyl, and alicyclic, or together R^9 and R^9 form a cyclic alkyl group;

R^{11} is selected from the group consisting of alkyl, aryl, $-NR^2_2$, and $-OR^2$; and

each R^{12} and R^{13} is independently selected from the group consisting of H, lower alkyl, lower aryl, lower aralkyl, all optionally substituted, or R^{12} and R^{13} together are connected via a chain of 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S, to form a cyclic group;

each R^{14} is independently selected from the group consisting of $–OR^{17}$, $-N(R^{17})_2$, $-NHR^{17}$, $–SR^{17}$, and $–NR^2OR^{20}$;

R^{15} is selected from the group consisting of –H, lower aralkyl, lower aryl, lower aralkyl, or together with R^{16} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{16} is selected from the group consisting of $-(CR^{12}R^{13})_n$-C(O)-R^{14}, -H, lower alkyl, lower aryl, lower aralkyl, or together with R^{15} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

each R^{17} is independently selected from the group consisting of lower alkyl, lower aryl, and lower aralkyl, or together R^{17} and R^{17} on N is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{18} is selected from the group consisting of –H and lower R^3;

R^{19} is selected from the group consisting of –H, and lower acyl;

R^{20} is selected from the group consisting of –H, lower R^3, and –C(O)-(lower R^3);

n is an integer from 1 to 3;

with the provisos that:

1) when X^3, X^4, or X^5 is N, then the respective J^3, J^4, or J^5 is null;

2) when L is substituted furanyl, then at least one of J^2, J^3, J^4, and J^5 is not –H or null;

3) when L is not substituted furanyl, then at least two of J^2, J^3, J^4, and J^5 on formula I(a) or J^2, J^3, J^4, J^5, and J^6 on formula I(b) are not –H or null;

4) when G^2, G^3, or G^4 is O or S, then the respective J^2, J^3, or J^4 is null;

5) when G^3 or G^4 is N, then the respective J^3 or J^4 is not halogen or a group directly bonded to G^3 or G^4 via a heteroatom;

6) if both Y groups are $-NR^6$-, and R^1 and R^1 are not connected to form a cyclic phosphoramidate, then at least one R^1 is $-(CR^{12}R^{13})_n$-C(O)-R^{14};

7) when L is –alkylenecarbonylamino- or -alkyleneaminocarbonyl-, then X^3, X^4, and X^5 are not all C;

~~8) when L is -alkeneoxyalkylene-, and X^3, X^4, and X^5 are all C, then neither J^3 nor J^5 can be substituted with an acylated amine;~~

8~~9~~) when R^5 is substituted phenyl, then J^3, J^4, and J^5 is not purinyl, purinylalkylene, deaza-purinyl, or deazapurinylalkylene;

9~~10~~) R^1 can be selected from the lower alkyl only when the other YR^1 is $-NR^6$-C($R^{12}R^{13}$)$_n$-C(O)-R^{14};

10~~1~~) when R^5 is substituted phenyl and L is 1,2-ethynyl, then J^3 or J^5 is not a heterocyclic group;

11~~2~~) when L is 1,2-ethynyl, then X^3 or X^5 cannot be N;

~~and pharmaceutically acceptable prodrugs and salts thereof;~~

~~13) when R^5 is substituted phenyl and L is alkyleneoxycarbonyl, then J^3 or J^5 is not O-aryl;~~

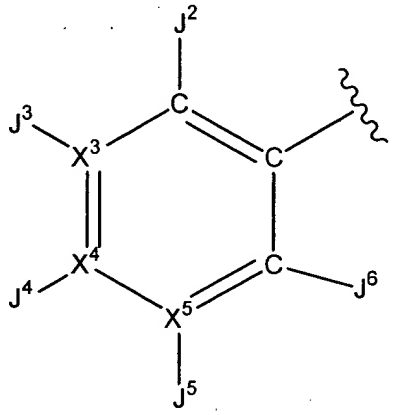
~~14) when R^5 is substituted phenyl and L is 1,2-ethynyl, then at least one of J^2, J^3, J^4, J^5, and J^6 is not H or null.~~

and pharmaceutically acceptable ~~prodrugs and~~ salts thereof.

2. (Original) The compounds of claim 1 wherein R^5 is selected from the group consisting of substituted phenyl, substituted pyrrolyl, substituted oxazolyl, substituted thiazolyl, substituted isothiazolyl, substituted pyrazolyl, substituted isoxazolyl, substituted pyridinyl, substituted thienyl, substituted furanyl, substituted pyrimidinyl, and substituted pyridazinyl.

3.-7. (Currently Cancelled)

8. (Original) The compounds of claim 1 wherein R^5 is a compound of formula I(b):



I (b)

9. (Currently Amended) The compounds of claim 1 wherein L is selected from the group consisting of :

i) 2,5-furanyl, 2,5-thienyl, 2,6-pyridyl, 2,5-oxazolyl, 5,2-oxazolyl, 2,4-oxazolyl, 4,2-oxazolyl, 2,4-imidazolyl, 2,6-pyrimidinyl, 2,6-pyrazinyl~~, 1,3-phenyl~~;

ii) 1,2-ethynyl; and

iii) a linking group having 3 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of -alkylenecarbonylamino-~~,~~ and -alkyleneaminocarbonyl-, ~~-alkyleneoxycarbonyl-, and -alkyleneoxyalkylene-~~.

10. (Currently Amended) The compounds of claim 9 wherein L is selected from the group consisting of:

i) 2,5-furanyl, 2,5-thienyl, 2,6-pyridyl, 2,5-oxazolyl, 5,2-oxazolyl, 2,4-oxazolyl, 4,2-oxazolyl, 2,4-imidazolyl, 2,6-pyrimidinyl, 2,6-pyrazinyl~~, 1,3-phenyl~~; and

ii) 1,2-ethynyl.

11. (Currently Amended) The compounds of claim 9 wherein L is selected from the group consisting of :

i) 2,5-furanyl, 2,6-pyridyl, 2,5-oxazolyl, 2,4-imidazolyl~~, 1,3-phenyl~~;

ii) 1,2-ethynyl; and

iii) a linking group having 3 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of -methylenecarbonylamino-~~,~~ and -methyleneaminocarbonyl-, ~~-methyleneoxycarbonyl-, and -methyleneoxymethylene-~~.

12. (Currently Amended) The compounds of claim 11 wherein L is selected from the group consisting of 2,5-furanyl~~, methyleneoxycarbonyl, methyleneoxymethylene,~~ and methyleneaminocarbonyl.

13. (Original) The compounds of claim 12 wherein L is 2,5-furanyl.

14. (Original) The compounds of claim 1 wherein X^4 and X^5 are C.

15. (Original) The compounds of claim 1 wherein J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of –H, $-NR^4_2$, $-C(O)NR^4_2$, $-CO_2R^3$, halo, $-SO_2NR^4_2$, lower alkyl, lower alkenyl, lower alkynyl, lower perhaloalkyl, lower haloalkyl, lower aryl, lower alkylaryl, lower alkylene-OH, $-OR^{11}$, $-CR^2_2NR^4_2$, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NO_2$, $-NHC(S)NR^4_2$, $-NR^{18}C(O)R^2$ and $-CR^2_2CN$.

16. (Original) The compounds of claim 12 wherein J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of –H, $-NO_2$, lower alkyl, lower alkylaryl, lower alkoxy, lower perhaloalkyl, halo, $-CH_2NHR^4$, $-C(O)NR^4_2$, $-S(O)_2NHR^4$, -OH, $-NH_2$, and $-NHC(O)R^2$.

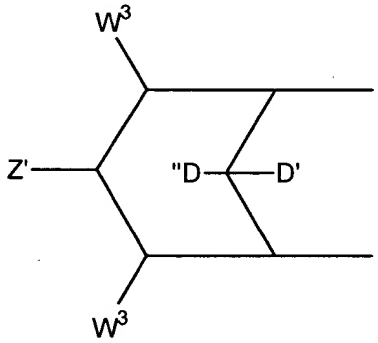
17. (Original) The compounds of claim 1, where both Y groups are -O-.

18. (Original) The compounds of claim 1, where both Y groups are $-NR^6-$.

19. (Original) The compounds of claim 1 where one Y is $-NR^6-$, and one Y is –O-.

20. (Original) The compounds of claim 1 wherein each YR^1 is –OH.

21. (Original) The compounds of claim 1 wherein R^1 and R^1 together are



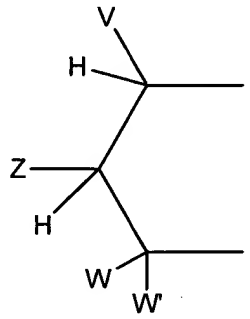
Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$; and

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl.

22. (Original) The compounds of claim 1 wherein R^1 and R^1 together are



V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

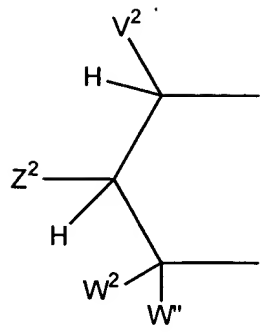
together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl.

23. (Original) The compounds of claim 1 wherein R^1 and R^1 together are



V^2, W^2 and W'' are independently selected from the group of –H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH{=}CR^2{}_2)OH$, $-CH(C{\equiv}CR^2)OH$, $-SR^2$, $-CH_2NHaryl$, $-CH_2aryl$; or

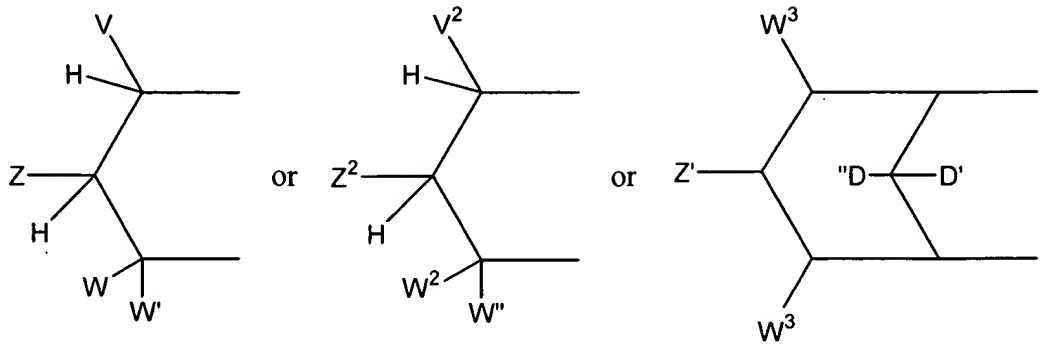
together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus.

24. (Original) The compounds of claim 1 wherein when both Y groups are -O-, then R^1 attached to -O- is optionally substituted aryl.

25. (Original) The compounds of claim 1 wherein when both Y groups are -O-, then R^1 is independently selected from the group consisting of optionally substituted aralkyl.

26. (Original) The compounds of claim 1 wherein both Y groups are -O-, and at least one R^1 is selected from the group consisting of $-C(R^2)_2-OC(O)R^3$, and $-C(R^2)_2-OC(O)OR^3$.

27. (Original) The compounds of claim 1 wherein at least one Y is -O-, and together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2$NHaryl, $-CH_2$aryl; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy,

alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and

b) both Y groups are not $-NR^6-$;

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

R^6 is selected from the group consisting of -H, and lower alkyl.

28. (Original) The compounds of claim 1, wherein one Y is -O-, and R^1 is optionally substituted aryl; and the other Y is $-NR^6-$, where R^1 attached to said $-NR^6-$ is selected from the group consisting of $-C(R^4)_2C(O)OR^3$, and $-C(R^2)_2C(O)OR^3$.

29. (Currently Amended) The compounds of claim 1 wherein

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of –H, $-NR^4_2$, $-CONR^4_2$, $-CO_2R^3$, halo, $-SO_2NR^4_2$, lower alkyl, lower alkenyl, lower alkylenearyl, lower alkynyl, lower perhaloalkyl, lower haloalkyl, lower aryl, lower alkylene-OH, $-OR^{11}$, $-CR^2_2NR^4_2$, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NO_2$, $-NHC(S)NR^4_2$, $-NR^{18}COR^2$, $-CR^2_2CN$;

L is selected from the group consisting of

i) 2,5-furanyl, 2,5-thienyl, ~~1,3-phenyl,~~ 2,6-pyridyl, 2,5-oxazolyl, 5,2-oxazolyl, 2,4-oxazolyl, 4,2-oxazolyl, 2,4-imidazolyl, 2,6-pyrimidinyl, 2,6-pyrazinyl;

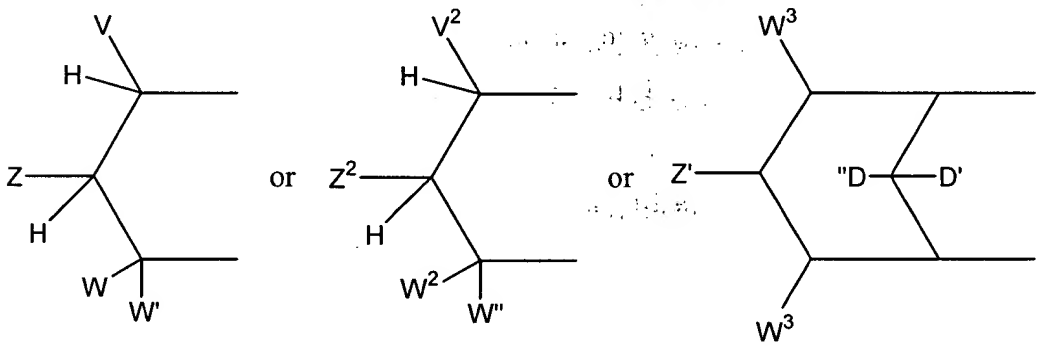
ii) 1,2-ethynyl; and

~~iii)~~ a linking group having 3 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of alkylenecarbonylamino-~~,~~ and -alkyleneaminocarbonyl-~~, alkyleneoxycarbonyl , and alkyleneoxyalkylene~~;

when both Y groups are -O-, then R^1 is independently selected from the group consisting of optionally substituted aryl, optionally substituted benzyl, $-C(R^2)_2OC(O)R^3$, $-C(R^2)_2OC(O)OR^3$, and -H; or

when one Y is -O-, then R^1 attached to -O- is optionally substituted aryl; and the other Y is $-NR^6-$, then R^1 attached to $-NR^6-$ is selected from the group consisting of $-C(R^4)_2C(O)OR^3$, and $-C(R^2)_2C(O)OR^3$; or

when Y is -O- or $-NR^6-$, then together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NHaryl$, $-CH_2aryl$; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and alicyclic; and

b) both Y groups are not $-NR^6-$;

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

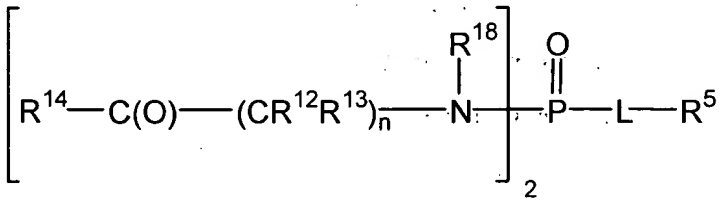
R^6 is selected from the group consisting of -H, and lower alkyl.

30. (Previously Amended) The compounds of claim 2 wherein R^5 is substituted phenyl; L is furan-2,5-diyl; J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of $-OR^3$, $-SO_2NHR^4$, -CN, –H, halo, $-NR^4{}_2$, $-(CH_2)_2$aryl, -(CH_2)NHaryl, and $-NO_2$; at least one Y group is -O-.

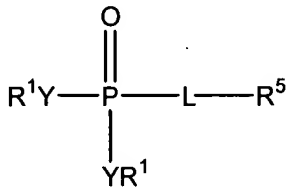
31. (Original) The compounds of claim 1 wherein one Y is $-NR^6-$, and R^1 attached to it is $-(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other YR^1 is selected from the group consisting of $-NR^{15}R^{16}$, $-OR^7$, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14}.

32. (Original) The compounds of claim 31 wherein the other YR^1 is $-OR^7$.

33. (Currently Amended) The compounds of claim 1 that are of the formula:

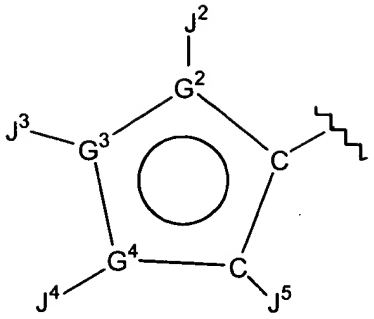


34. (Currently Amended) A method of treating complications of diabetes or cardiovascular diseases in an animal which comprises administering to an animal suffering from complications of diabetes or cardiovascular diseases a pharmaceutically effective amount of a compound of formula (I):

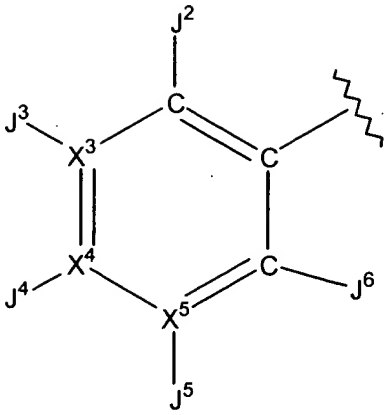


(I)

wherein R^5 is selected from the group consisting of:



and



I (a) **I (b)**

wherein:

G^2 is selected from the group consisting of C, O, and S;

G^3 and G^4 are independently selected from the group consisting of C, N, O, and S;

wherein a) not more than one of G^2, G^3, and G^4 may be O, or S; b) when G^2 is O or S, not more than one of G^3 and G^4 is N; c) at least one of G^2, G^3, and G^4 is C; and d) G^2, G^3, and G^4 are not all C;

X^3, X^4, and X^5 are independently selected from the group consisting of C and N, wherein no more than two of X^3, X^4, and X^5 may be N;

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of -H, $-NR^4_2$, $-CONR^4_2$, $-CO_2R^3$, halo, $-S(O)_2NR^4_2$, $-S(O)R^3$, $-SO_2R^3$, alkyl, alkenyl, alkynyl, alkylenearyl, perhaloalkyl, haloalkyl, aryl, heteroaryl, alkylene-OH, $-C(O)R^{11}$, $-OR^{11}$, -alkylene-NR^4_2, -alkylene-CN, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NO_2$, $-NHC(S)NR^4_2$, and $-NR^{18}COR^2$;

L is selected from the group consisting of:

i) a linking group having 2-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –furanyl-, -thienyl-, -pyridyl-, -oxazolyl-, -imidazolyl-, -phenyl-, -pyrimidinyl-, –pyrazinyl-, and -alkynyl-, all of which may be optionally substituted; and

ii) a linking group having 3-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –alkylenecarbonylamino-, -alkyleneaminocarbonyl-, -alkyleneoxycarbonyl-, -alkyleneoxy-, -alkylenethio-, -alkylenecarbonyloxy-, -alkylene-S(O)-, -alkylene-$S(O)_2$-, and

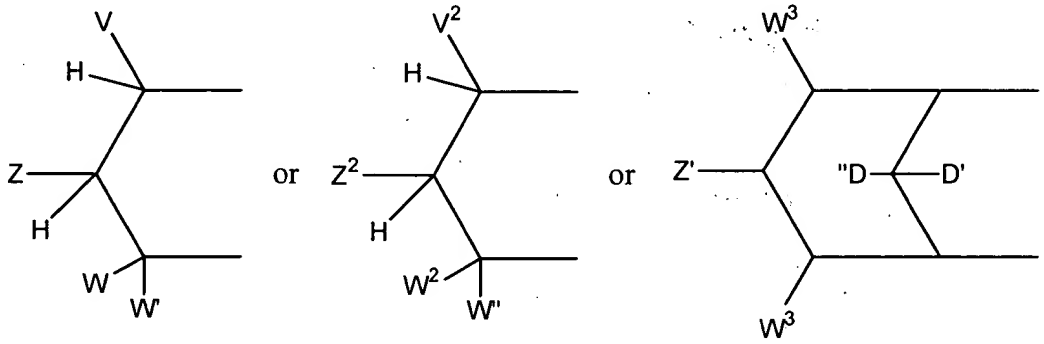
–alkyleneoxyalkylene-, all of which may be optionally substituted;

Y is independently selected from the group consisting of -O-, and -NR^6-;

when Y is -O-, then R^1 attached to -O- is independently selected from the group consisting of -H, alkyl, optionally substituted aryl, optionally substituted heterocyclic alkyl ~~alicyclic~~ where the cyclic moiety contains a carbonate or thiocarbonate, optionally substituted arylalkylene-, -$C(R^2)_2OC(O)NR^2_2$, -NR^2-C(O)-R^3, -$C(R^2)_2$-$OC(O)R^3$, -$C(R^2)_2$-O-$C(O)OR^3$, -$C(R^2)_2OC(O)SR^3$, -alkylene-S-$C(O)R^3$, -alkylene-S-S-alkylenehydroxy, and -alkylene-S-S-S-alkylenehydroxy,

when one Y is –NR^6-, and R^1 attached to it is –$(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other YR^1 is selected from the group consisting of –$NR^{15}R^{16}$, -OR^7, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14};

or when either Y is independently selected from -O- and -NR^6-, then together R^1 and R^1 are -alkylene-S-S-alkylene- to form a cyclic group, or together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of –CHR^2OH , -$CHR^2OC(O)R^3$, -$CHR^2OC(S)R^3$, -$CHR^2OC(S)OR^3$, -$CHR^2OC(O)SR^3$, -$CHR^2OCO_2R^3$, -OR^2 , -SR^2, -CHR^2N_3, -CH_2aryl, -CH(aryl)OH, -$CH(CH=CR^2_2)OH$, -$CH(C\equiv CR^2)OH$, -R^2 , -NR^2_2, -$OCOR^3$, -OCO_2R^3, -$SCOR^3$, -SCO_2R^3, -$NHCOR^2$, -$NHCO_2R^3$, -CH_2NHaryl, -$(CH_2)_p$-OR^{19}, and -$(CH_2)_p$-SR^{19}; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NHaryl$, $-CH_2aryl$; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

each R^4 is independently selected from the group consisting of -H, alkylene, -alkylenearyl and aryl, or together R^4 and R^4 are connected via 2-6 atoms, optionally including one heteroatom selected from the group consisting of O, N, and S;

R^6 is selected from the group consisting of -H, lower alkyl, acyloxyalkyl, aryl, aralkyl, alkyloxycarbonyloxyalkyl, and lower acyl, or together with R^{12} is connected via 1-4 carbon atoms to form a cyclic group;

R^7 is lower R^3;

each R^9 is independently selected from the group consisting of -H, alkyl, aralkyl, and alicyclic, or together R^9 and R^9 form a cyclic alkyl group;

R^{11} is selected from the group consisting of alkyl, aryl, $-NR^2_2$, and $-OR^2$; and

each R^{12} and R^{13} is independently selected from the group consisting of H, lower alkyl, lower aryl, lower aralkyl, all optionally substituted, or R^{12} and R^{13} together are connected via a chain of 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S, to form a cyclic group;

each R^{14} is independently selected from the group consisting of $-OR^{17}$, $-N(R^{17})_2$, $-NHR^{17}$, $-SR^{17}$, and $-NR^2OR^{20}$;

R^{15} is selected from the group consisting of –H, lower aralkyl, lower aryl, lower aralkyl, or together with R^{16} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{16} is selected from the group consisting of $-(CR^{12}R^{13})_n$-C(O)-R^{14}, -H, lower alkyl, lower aryl, lower aralkyl, or together with R^{15} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

each R^{17} is independently selected from the group consisting of lower alkyl, lower aryl, and lower aralkyl, or together R^{17} and R^{17} on N is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{18} is selected from the group consisting of –H and lower R^3;

R^{19} is selected from the group consisting of –H, and lower acyl;

R^{20} is selected from the group consisting of –H, lower R^3, and –C(O)-(lower R^3);

n is an integer from 1 to 3;

with the provisos that:

1) when X^3, X^4, or X^5 is N, then the respective J^3, J^4, or J^5 is null;

2) when G^2, G^3, or G^4 is O or S, then the respective J^2, J^3, or J^4 is null;

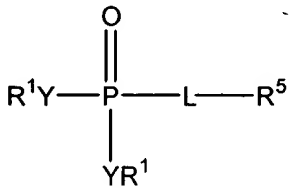
3) when G^3 or G^4 is N, then the respective J^3 or J^4 is not halogen or a group directly bonded to G^3 or G^4 via a heteroatom;

4) if both Y groups are $-NR^6-$, and R^1 and R^1 are not connected to form a cyclic phosphoramidate, then at least one R^1 is $-(CR^{12}R^{13})_n-C(O)-R^{14}$;

5) R^1 can be selected from the lower alkyl only when the other YR^1 is $-NR^6-C(R^{12}R^{13})_n-C(O)-R^{14}$;

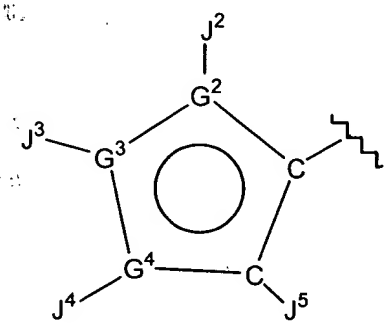
and pharmaceutically acceptable ~~prodrugs and~~ salts thereof.

35. (Currently Amended) A method of treating diabetes, by administering to patient ~~in need thereof~~ a pharmaceutically effective amount of an FBPase inhibitor of Formula I:



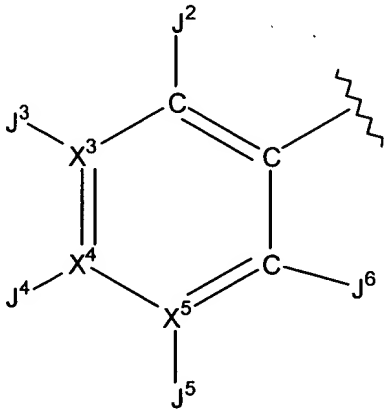
(I)

wherein R^5 is selected from the group consisting of:



I (a)

and



I (b)

wherein:

G^2 is selected from the group consisting of C, O, and S;

G^3 and G^4 are independently selected from the group consisting of C, N, O, and S;

wherein a) not more than one of G^2, G^3, and G^4 may be O, or S; b) when G^2 is O or S, not more than one of G^3 and G^4 is N; c) at least one of G^2, G^3, and G^4 is C; and d) G^2, G^3, and G^4 are not all C;

X^3, X^4, and X^5 are independently selected from the group consisting of C and N, wherein no more than two of X^3, X^4, and X^5 may be N;

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of -H, $-NR^4_2$, $-CONR^4_2$, $-CO_2R^3$, halo, $-S(O)_2NR^4_2$, $-S(O)R^3$, $-SO_2R^3$, alkyl, alkenyl, alkynyl, alkylenearyl, perhaloalkyl, haloalkyl, aryl, heteroaryl, alkylene-OH, $-C(O)R^{11}$, $-OR^{11}$, -alkylene-NR^4_2, -alkylene-CN, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NO_2$, $-NHC(S)NR^4_2$, and $-NR^{18}COR^2$;

L is selected from the group consisting of:

i) a linking group having 2-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –furanyl-, -thienyl-, -pyridyl-, -oxazolyl-, -imidazolyl-, -phenyl-, -pyrimidinyl-, –pyrazinyl-, and -alkynyl-, all of which may be optionally substituted; and

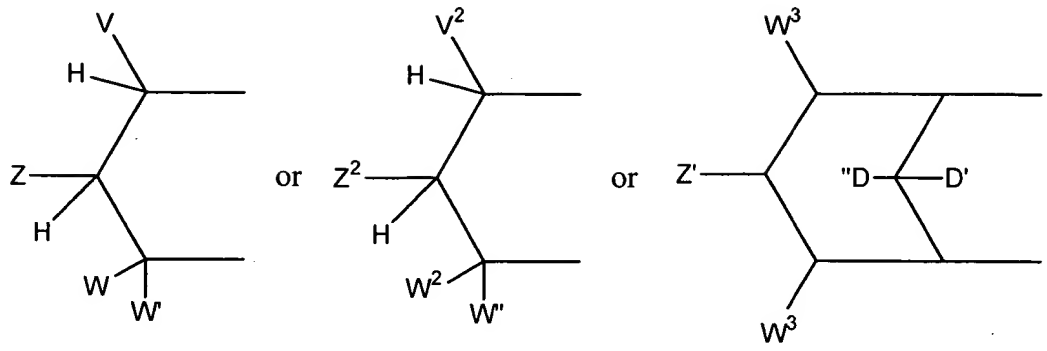
ii) a linking group having 3-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –alkylenecarbonylamino-, -alkyleneaminocarbonyl-, -alkyleneoxycarbonyl-, -alkyleneoxy-, -alkylenethio-, -alkylenecarbonyloxy-, -alkylene-S(O)-, -alkylene-$S(O)_2$-, and –alkyleneoxyalkylene-, all of which may be optionally substituted;

Y is independently selected from the group consisting of -O-, and $-NR^6$-;

when Y is -O-, then R^1 attached to -O- is independently selected from the group consisting of -H, alkyl, optionally substituted aryl, optionally substituted <u>heterocyclic alkyl</u> ~~alicyclic~~ where the cyclic moiety contains a carbonate or thiocarbonate, optionally substituted arylalkylene-, $-C(R^2)_2OC(O)NR^2_2$, $-NR^2$-C(O)-R^3, $-C(R^2)_2$-$OC(O)R^3$, $-C(R^2)_2$-O-$C(O)OR^3$, $-C(R^2)_2OC(O)SR^3$, -alkylene-S-$C(O)R^3$, -alkylene-S-S-alkylenehydroxy, and -alkylene-S-S-S-alkylenehydroxy,

when one Y is $-NR^6$-, and R^1 attached to it is $-(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other YR^1 is selected from the group consisting of $-NR^{15}R^{16}$, $-OR^7$, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14};

or when either Y is independently selected from -O- and $-NR^6$-, then together R^1 and R^1 are -alkylene-S-S-alkylene- to form a cyclic group, or together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2NH$aryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NH$aryl, $-CH_2$aryl; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy,

alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

each R^4 is independently selected from the group consisting of -H, alkylene, -alkylenearyl and aryl, or together R^4 and R^4 are connected via 2-6 atoms, optionally including one heteroatom selected from the group consisting of O, N, and S;

R^6 is selected from the group consisting of -H, lower alkyl, acyloxyalkyl, aryl, aralkyl, alkyloxycarbonyloxyalkyl, and lower acyl, or together with R^{12} is connected via 1-4 carbon atoms to form a cyclic group;

R^7 is lower R^3;

each R^9 is independently selected from the group consisting of -H, alkyl, aralkyl, and alicyclic, or together R^9 and R^9 form a cyclic alkyl group;

R^{11} is selected from the group consisting of alkyl, aryl, $-NR^2_2$, and $-OR^2$; and

each R^{12} and R^{13} is independently selected from the group consisting of H, lower alkyl, lower aryl, lower aralkyl, all optionally substituted, or R^{12} and R^{13} together are connected via a chain of 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S, to form a cyclic group;

each R^{14} is independently selected from the group consisting of $-OR^{17}$, $-N(R^{17})_2$, $-NHR^{17}$, $-SR^{17}$, and $-NR^2OR^{20}$;

R^{15} is selected from the group consisting of –H, lower aralkyl, lower aryl, lower aralkyl, or together with R^{16} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{16} is selected from the group consisting of $-(CR^{12}R^{13})_n$-C(O)-R^{14}, -H, lower alkyl, lower aryl, lower aralkyl, or together with R^{15} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

each R^{17} is independently selected from the group consisting of lower alkyl, lower aryl, and lower aralkyl, or together R^{17} and R^{17} on N is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{18} is selected from the group consisting of –H and lower R^3;

R^{19} is selected from the group consisting of –H, and lower acyl;

R^{20} is selected from the group consisting of –H, lower R^3, and –C(O)-(lower R^3);

n is an integer from 1 to 3;

with the provisos that:

1) when X^3, X^4, or X^5 is N, then the respective J^3, J^4, or J^5 is null;

2) when G^2, G^3, or G^4 is O or S, then the respective J^2, J^3, or J^4 is null;

3) when G^3 or G^4 is N, then the respective J^3 or J^4 is not halogen or a group directly bonded to G^3 or G^4 via a heteroatom;

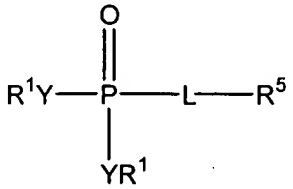
4) if both Y groups are $-NR^6$-, and R^1 and R^1 are not connected to form a cyclic phosphoramidate, then at least one R^1 is $-(CR^{12}R^{13})_n$-C(O)-R^{14};

5) R^1 can be selected from the lower alkyl only when the other YR^1 is $-NR^6$-$C(R^{12}R^{13})_n$-C(O)-R^{14};

and pharmaceutically acceptable ~~prodrugs and~~ salts thereof.

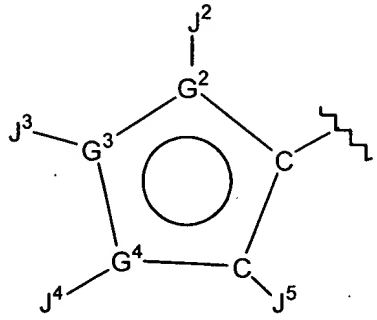
36. (Currently Cancelled)

37. (New) A compound of formula (I):

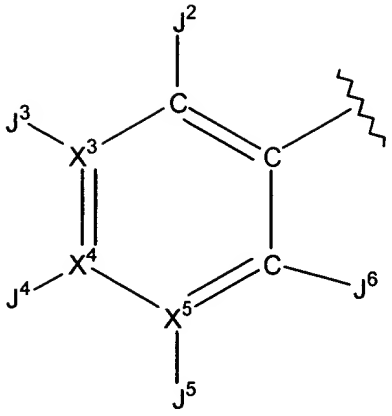


(I)

wherein R^5 is selected from the group consisting of:



and



I (a) **I (b)**

wherein:

G^2 is selected from the group consisting of C, O, and S;

G^3 and G^4 are independently selected from the group consisting of C, N, O, and S;

wherein a) not more than one of G^2, G^3, and G^4 may be O, or S; b) when G^2 is O or S, not more than one of G^3 and G^4 is N; c) at least one of G^2, G^3, and G^4 is C; and d) G^2, G^3, and G^4 are not all C;

X^3, X^4, and X^5 are independently selected from the group consisting of C and N, wherein no more than two of X^3, X^4, and X^5 may be N;

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of $-CONR^4_2$, $-CO_2R^3$, $-S(O)_2NR^4_2$, $-S(O)R^3$, $-SO_2R^3$, alkyl, alkenyl, alkynyl, alkylenearyl, perhaloalkyl, haloalkyl, aryl, heteroaryl, alkylene-OH, $-C(O)R^{11}$, $-OR^{11}$, -alkylene-NR^4_2, -alkylene-CN, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NHC(S)NR^4_2$, and $-NR^{18}COR^2$;

L is selected from the group consisting of:

i) a linking group having 2-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of – furanyl-, -thienyl-, -pyridyl-, -oxazolyl-, -imidazolyl-, -phenyl-, -pyrimidinyl-, –pyrazinyl-, and -alkynyl-, all of which may be optionally substituted; and

ii) a linking group having 3-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –

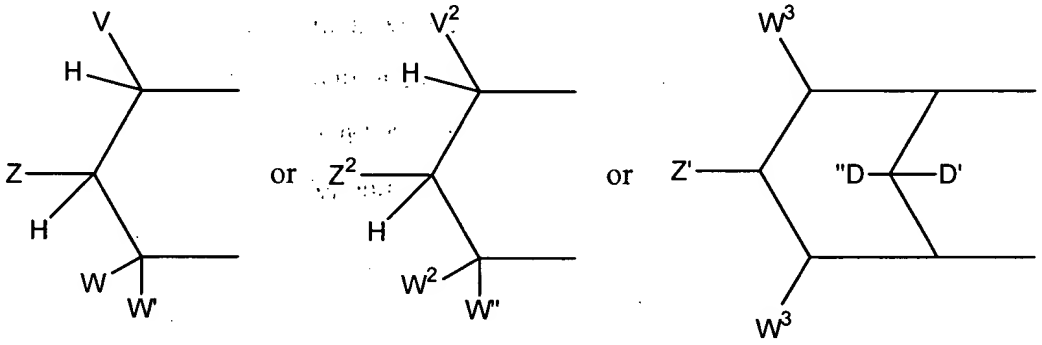
alkylenecarbonylamino-, -alkyleneaminocarbonyl-, -alkyleneoxycarbonyl-, -alkyleneoxy-, and –alkyleneoxyalkylene-, all of which may be optionally substituted;

Y is independently selected from the group consisting of -O-, and -NR^6-;

when Y is -O-, then R^1 attached to -O- is independently selected from the group consisting of -H, alkyl, optionally substituted aryl, optionally substituted heterocyclic alkyl where the cyclic moiety contains a carbonate or thiocarbonate, optionally substituted arylalkylene-, -$C(R^2)_2OC(O)NR^2_2$, -NR^2-C(O)-R^3, -$C(R^2)_2$-$OC(O)R^3$, -$C(R^2)_2$-O-$C(O)OR^3$, -$C(R^2)_2OC(O)SR^3$, -alkylene-S-$C(O)R^3$, -alkylene-S-S-alkylenehydroxy, and -alkylene-S-S-S-alkylenehydroxy,

when one Y is –NR^6-, and R^1 attached to it is –$(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other YR^1 is selected from the group consisting of –$NR^{15}R^{16}$, -OR^7, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14};

or when either Y is independently selected from -O- and -NR^6-, then together R^1 and R^1 are -alkylene-S-S-alkylene- to form a cyclic group, or together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of –CHR^2OH , -$CHR^2OC(O)R^3$, -$CHR^2OC(S)R^3$, -$CHR^2OC(S)OR^3$, -$CHR^2OC(O)SR^3$, -$CHR^2OCO_2R^3$, -OR^2 , -SR^2, -CHR^2N_3, -CH_2aryl, -CH(aryl)OH, -$CH(CH=CR^2_2)OH$, -$CH(C\equiv CR^2)OH$, -R^2 , -NR^2_2, -$OCOR^3$, -OCO_2R^3, -$SCOR^3$, -SCO_2R^3, -$NHCOR^2$, -$NHCO_2R^3$, -CH_2NHaryl, -$(CH_2)_p$-OR^{19}, and -$(CH_2)_p$-SR^{19}; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NHaryl$, $-CH_2aryl$; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

each R^4 is independently selected from the group consisting of -H, alkylene, -alkylenearyl and aryl, or together R^4 and R^4 are connected via 2-6 atoms, optionally including one heteroatom selected from the group consisting of O, N, and S;

R^6 is selected from the group consisting of -H, lower alkyl, acyloxyalkyl, aryl, aralkyl, alkyloxycarbonyloxyalkyl, and lower acyl, or together with R^{12} is connected via 1-4 carbon atoms to form a cyclic group;

R^7 is lower R^3;

each R^9 is independently selected from the group consisting of -H, alkyl, aralkyl, and alicyclic, or together R^9 and R^9 form a cyclic alkyl group;

R^{11} is selected from the group consisting of alkyl, aryl, $-NR^2_2$, and $-OR^2$; and

each R^{12} and R^{13} is independently selected from the group consisting of H, lower alkyl, lower aryl, lower aralkyl, all optionally substituted, or R^{12} and R^{13} together are connected via a chain of 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S, to form a cyclic group;

each R^{14} is independently selected from the group consisting of $-OR^{17}$, $-N(R^{17})_2$, $-NHR^{17}$, $-SR^{17}$, and $-NR^2OR^{20}$;

R^{15} is selected from the group consisting of –H, lower aralkyl, lower aryl, lower aralkyl, or together with R^{16} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{16} is selected from the group consisting of $-(CR^{12}R^{13})_n$-C(O)-R^{14}, -H, lower alkyl, lower aryl, lower aralkyl, or together with R^{15} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

each R^{17} is independently selected from the group consisting of lower alkyl, lower aryl, and lower aralkyl, or together R^{17} and R^{17} on N is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{18} is selected from the group consisting of –H and lower R^3;

R^{19} is selected from the group consisting of –H, and lower acyl;

R^{20} is selected from the group consisting of –H, lower R^3, and –C(O)-(lower R^3);

n is an integer from 1 to 3;

with the provisos that:

1) when G^3 or G^4 is N, then the respective J^3 or J^4 is not a group directly bonded to G^3 or G^4 via a heteroatom;

2) if both Y groups are $-NR^6$-, and R^1 and R^1 are not connected to form a cyclic phosphoramidate, then at least one R^1 is $-(CR^{12}R^{13})_n$-C(O)-R^{14};

3) when L is –alkylenecarbonylamino- or -alkyleneaminocarbonyl-, then X^3, X^4, and X^5 are not all C;

4) when R^5 is substituted phenyl, then J^3, J^4, and J^5 is not purinyl, purinylalkylene, deaza-purinyl, or deazapurinylalkylene;

5) R^1 can be selected from the lower alkyl only when the other YR^1 is $–NR^6\text{-}C(R^{12}R^{13})_n\text{-}C(O)\text{-}R^{14}$;

6) when R^5 is substituted phenyl and L is 1,2-ethynyl, then J^3 or J^5 is not a heterocyclic group;

7) when L is 1,2-ethynyl, then X^3 or X^5 cannot be N;

and pharmaceutically acceptable prodrugs and salts thereof.

38. (New) The compounds of claim 37 wherein R^5 is selected from the group consisting of substituted phenyl, substituted pyrrolyl, substituted oxazolyl, substituted thiazolyl, substituted isothiazolyl, substituted pyrazolyl, substituted isoxazolyl, substituted pyridinyl, substituted thienyl, substituted furanyl, substituted pyrimidinyl, and substituted pyridazinyl.

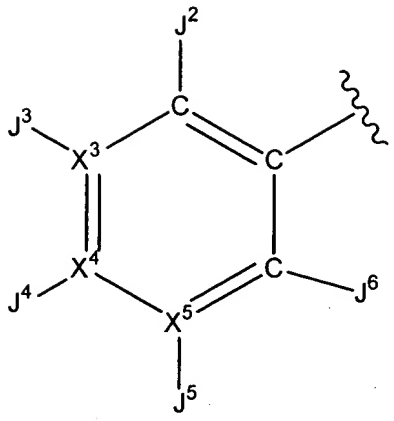
39. (New) The compounds of claim 37 with the further proviso that when L is -alkyleneoxyalkylene-, and R^5 is substituted thienyl, substituted furanyl, or substituted phenyl, then J^3, J^4, or J^5 is not alkenyl.

40. (New) The compounds of claim 37 with the further proviso that when L is -alkyleneoxyalkylene-, then R^5 is not substituted thienyl, substituted furanyl, or substituted phenyl.

41. (New) The compounds of claim 37 with the further proviso that when L is -alkyleneoxycarbonyl-, and X^3, X^4, and X^5 are all C, then neither J^2 nor J^6 is a group attached through a nitrogen atom.

42. (New) The compounds of claim 37 with the further proviso that when L is –alkyleneoxyalkylene- or –alkyleneoxycarbonyl-, then R^5 is not substituted phenyl.

43. (New) The compounds of claim 37 wherein R^5 is a compound of formula I(b):



I (b)

44. (New) The compounds of claim 37 wherein L is selected from the group consisting of :

i) 2,5-furanyl, 2,5-thienyl, 2,6-pyridyl, 2,5-oxazolyl, 5,2-oxazolyl, 2,4-oxazolyl, 4,2-oxazolyl, 2,4-imidazolyl, 2,6-pyrimidinyl, 2,6-pyrazinyl, 1,3-phenyl;

ii) 1,2-ethynyl; and

iii) a linking group having 3 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of -alkylenecarbonylamino-, -alkyleneaminocarbonyl-, -alkyleneoxycarbonyl-, and -alkyleneoxyalkylene-.

45. (New) The compounds of claim 44 wherein L is selected from the group consisting of :

i) 2,5-furanyl, 2,5-thienyl, 2,6-pyridyl, 2,5-oxazolyl, 5,2-oxazolyl, 2,4-oxazolyl, 4,2-oxazolyl, 2,4-imidazolyl, 2,6-pyrimidinyl, 2,6-pyrazinyl, 1,3-phenyl; and

ii) 1,2-ethynyl.

46. (New) The compounds of claim 45 wherein L is selected from the group consisting of :

i) 2,5-furanyl, 2,6-pyridyl, 2,5-oxazolyl, 2,4-imidazolyl, 1,3-phenyl;

ii) 1,2-ethynyl; and

iii) a linking group having 3 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from

the group consisting of -methylenecarbonylamino-, -methyleneaminocarbonyl-, -methyleneoxycarbonyl-, and -methyleneoxymethylene-.

47. (New) The compounds of claim 46 wherein L is selected from the group consisting of 2,5-furanyl, methyleneoxycarbonyl, methyleneoxymethylene, and methyleneaminocarbonyl.

48. (New) The compounds of claim 47 wherein L is 2,5-furanyl.

49. (New) The compounds of claim 37 wherein X^4 and X^5 are C.

50. (New) The compounds of claim 37 wherein J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of $-C(O)NR^4_2$, $-CO_2R^3$, $-SO_2NR^4_2$, lower alkyl, lower alkenyl, lower alkynyl, lower perhaloalkyl, lower haloalkyl, lower aryl, lower alkylaryl, lower alkylene-OH, $-OR^{11}$, $-CR^2_2NR^4_2$, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NHC(S)NR^4_2$, $-NR^{18}C(O)R^2$ and $-CR^2_2CN$.

51. (New) The compounds of claim 47 wherein J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of lower alkyl, lower alkylaryl, lower alkoxy, lower perhaloalkyl, $-CH_2NHR^4$, $-C(O)NR^4_2$, $-S(O)_2NHR^4$, -OH, and $-NHC(O)R^2$.

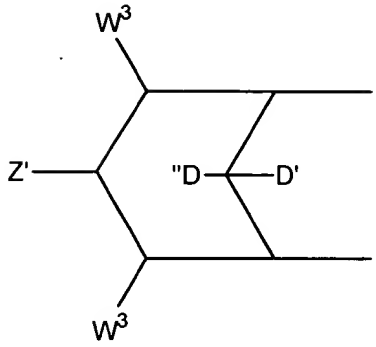
52. (New) The compounds of claim 37, where both Y groups are -O-.

53. (New) The compounds of claim 37 where both Y groups are $-NR^6-$.

54. (New) The compounds of claim 37 where one Y is $-NR^6-$, and one Y is –O-.

55. (New) The compounds of claim 37 wherein each YR^1 is –OH.

56. (New) The compounds of claim 37 wherein R^1 and R^1 together are



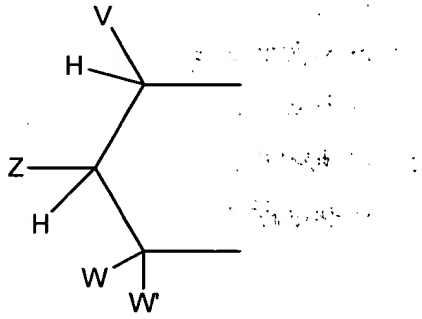
Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$; and

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl.

57. (New) The compounds of claim 37 wherein R^1 and R^1 together are



V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

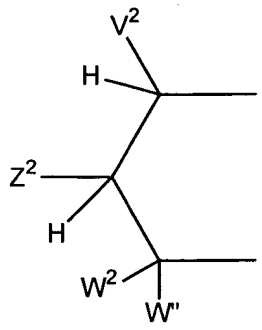
together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl.

58. (New) The compounds of claim 37 wherein R^1 and R^1 together are



V^2, W^2 and W'' are independently selected from the group of –H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NHaryl$, $-CH_2aryl$; or

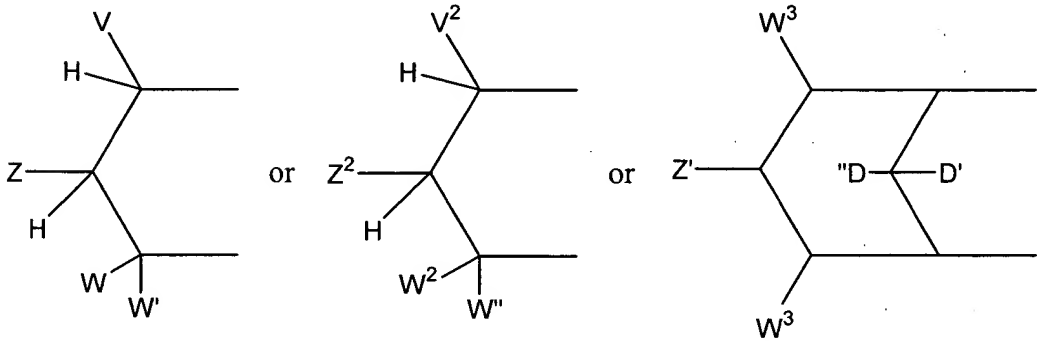
together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus.

59. (New) The compounds of claim 37 wherein when both Y groups are -O-, then R^1 attached to -O- is optionally substituted aryl.

60. (New) The compounds of claim 37 wherein when both Y groups are -O-, then R^1 is independently selected from the group consisting of optionally substituted aralkyl.

61. (New) The compounds of claim 37 wherein both Y groups are -O-, and at least one R^1 is selected from the group consisting of $-C(R^2)_2-OC(O)R^3$, and $-C(R^2)_2-OC(O)OR^3$.

62. (New) The compounds of claim 37 wherein at least one Y is -O-, and together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2NHaryl$, $-CH_2aryl$; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$, $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and

b) both Y groups are not $-NR^6-$;

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

R^6 is selected from the group consisting of -H, and lower alkyl.

63. (New) The compounds of claim 37 wherein one Y is -O-, and R^1 is optionally substituted aryl; and the other Y is $-NR^6-$, where R^1 attached to said $-NR^6-$ is selected from the group consisting of $-C(R^4)_2C(O)OR^3$, and $-C(R^2)_2C(O)OR^3$.

64. (New) The compounds of claim 37 wherein

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of $-CONR^4_2$, $-CO_2R^3$, $-SO_2NR^4_2$, lower alkyl, lower alkenyl, lower alkylenearyl, lower alkynyl, lower perhaloalkyl, lower haloalkyl, lower aryl, lower alkylene-OH, $-OR^{11}$, $-CR^2_2NR^4_2$, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NHC(S)NR^4_2$, $-NR^{18}COR^2$, $-CR^2_2CN$;

L is selected from the group consisting of

i) 2,5-furanyl, 2,5-thienyl, 1,3-phenyl, 2,6-pyridyl, 2,5-oxazolyl, 5,2-oxazolyl, 2,4-oxazolyl, 4,2-oxazolyl, 2,4-imidazolyl, 2,6-pyrimidinyl, 2,6-pyrazinyl;

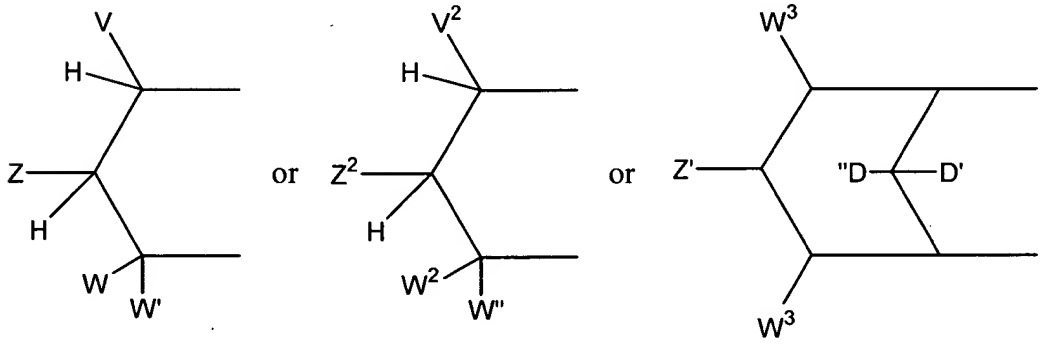
ii) 1,2-ethynyl; and

iii) a linking group having 3 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of alkylenecarbonylamino-, -alkyleneaminocarbonyl-, -alkyleneoxycarbonyl-, and -alkyleneoxyalkylene-;

when both Y groups are -O-, then R^1 is independently selected from the group consisting of optionally substituted aryl, optionally substituted benzyl, $-C(R^2)_2OC(O)R^3$, $-C(R^2)_2OC(O)OR^3$, and -H; or

when one Y is -O-, then R^1 attached to -O- is optionally substituted aryl; and the other Y is $-NR^6$-, then R^1 attached to $-NR^6$- is selected from the group consisting of $-C(R^4)_2C(O)OR^3$, and $-C(R^2)_2C(O)OR^3$; or

when Y is -O- or $-NR^6$-, then together R^1 and R^1 are



wherein

a) V is selected from the group of aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkynyl and 1-alkenyl;

Z is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V; or

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl; or

W and W′ are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl and 1-alkynyl and $-R^9$; or

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

b) V^2, W^2 and W'' are independently selected from the group of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

Z^2 is selected from the group of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OCO_2R^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OC(S)OR^3$, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-SR^2$, $-CH_2$NHaryl, $-CH_2$aryl; or

together V^2 and Z^2 are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally containing 1 heteroatom, and substituted with hydroxy, acyloxy, alkyleneoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from a Y attached to phosphorus;

c) Z' is selected from the group of -OH, $-OC(O)R^3$; $-OCO_2R^3$, and $-OC(O)SR^3$;

D' is –H;

D" is selected from the group of -H, alkyl, $-OR^2$, -OH, and $-OC(O)R^3$;

each W^3 is independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all –H and V^2, Z^2, W^2, W" are not all –H ; and alicyclic; and

b) both Y groups are not -NR^6-;

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

R^6 is selected from the group consisting of -H, and lower alkyl.

65. (New) The compounds of claim 38 wherein R^5 is substituted phenyl;

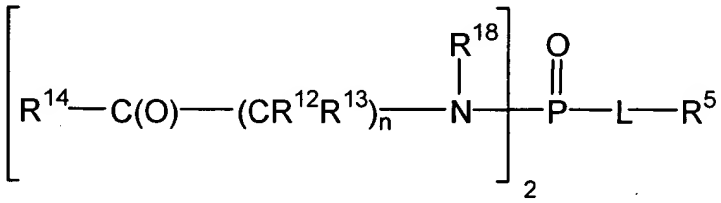
L is furan-2,5-diyl; J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of –OR^3, -SO_2NHR^4, -CN, -$(CH_2)_2$aryl, and -(CH_2)NHaryl; at least one Y group is -O-.

66. (New) The compounds of claim 37 wherein

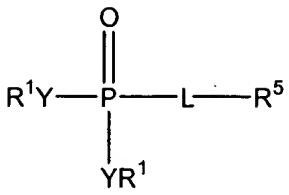
one Y is –NR^6-, and R^1 attached to it is –$(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other YR^1 is selected from the group consisting of –$NR^{15}R^{16}$, -OR^7, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14}.

67. (New) The compounds of claim 66 wherein the other YR^1 is –OR^7.

68. (New) The compounds of claim 37 that are of the formula:

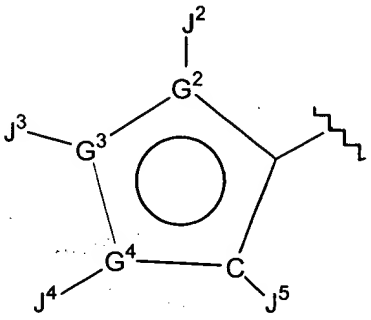


69. (New) A compound of formula (I):



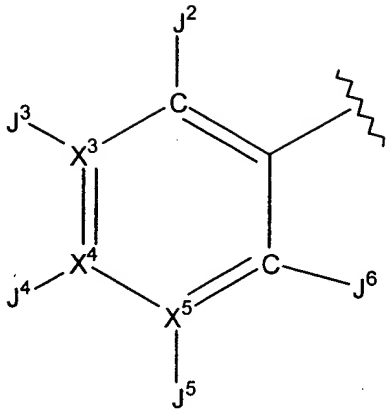
(I)

wherein R^5 is selected from the group consisting of:



I (a)

and



I (b)

wherein:

G^2 is selected from the group consisting of C, O, and S;

G^3 and G^4 are independently selected from the group consisting of C, N, O, and S;

wherein only one of G^2, G^3, and G^4 may be O, or S, and at most one of G^3 and G^4 is N, and at least one of G^2, G^3, and G^4 is C;

X^3, X^4, and X^5 are independently selected from the group consisting of C and N, wherein no more than two of X^3, X^4, and X^5 may be N;

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of -H, $-NR^4_2$, $-CONR^4_2$, $-CO_2R^3$, halo, $-S(O)_2NR^4_2$, $-S(O)R^3$, $-SO_2R^3$, alkyl, alkenyl, alkynyl, alkylaryl, perhaloalkyl, haloalkyl, aryl, heteroaryl, alkylene-OH, $-C(O)R^{11}$, $-OR^{11}$, -alkylene-NR^4_2, -alkylene-CN, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NO_2$, $-NHC(S)NR^4_2$, and $-NR^{18}COR^2$;

L is selected from the group consisting of:

i) a linking group having 2-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –furanyl-, -thienyl-, -pyridyl-, -oxazolyl-, -imidazolyl-, -pyrimidinyl-, and –pyrazinyl-, all of which may be optionally substituted; and

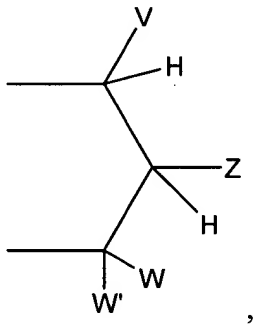
ii) a linking group having 3-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –alkylcarbonylamino-, -alkylaminocarbonyl-, and -alkoxy-, all of which may be optionally substituted;

Y is independently selected from the group consisting of -O-, and $-NR^6-$;

when Y is -O-, then R^1 attached to -O- is independently selected from the group consisting of -H, alkyl, optionally substituted aryl, optionally substituted heterocycloalkyl where the cyclic moiety contains a carbonate or thiocarbonate, optionally substituted -alkylaryl, $-C(R^2)_2OC(O)NR^2_2$, $-NR^2-C(O)-R^3$, $-C(R^2)_2-OC(O)R^3$, $-C(R^2)_2-O-C(O)OR^3$, $-C(R^2)_2OC(O)SR^3$, -alkyl-S-C(O)R^3, -alkyl-S-S-alkylhydroxy, and -alkyl-S-S-S-alkylhydroxy,

when one Y is $-NR^6-$, and R^1 attached to it is $-(CR^{12}R^{13})_n-C(O)-R^{14}$, then the other Y is selected from the group consisting of $-NR^{15}R^{16}$, $-OR^7$, and $NR^6-(CR^{12}R^{13})_n-C(O)-R^{14}$;

or when either Y is independently selected from -O- and $-NR^6-$, then together R^1 and R^1 are -alkyl-S-S-alkyl- to form a cyclic group, or together R^1 and R^1 are



,

wherein

V, W, and W' are independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally 1 heteroatom, substituted with hydroxy, acyloxy, alkoxycarbonyloxy, or

aryloxycarbonyloxy attached to a carbon atom that is three atoms from both Y groups attached to the phosphorus; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V;

together V and W are connected via an additional 3 carbon atoms to form an optionally substituted cyclic group containing 6 carbon atoms and substituted with one substituent selected from the group consisting of hydroxy, acyloxy, alkoxycarbonyloxy, alkylthiocarbonyloxy, and aryloxycarbonyloxy, attached to one of said carbon atoms that is three atoms from a Y attached to the phosphorus;

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

Z is selected from the group consisting of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all -H; and

b) when Z is $-R^2$, then at least one of V, W, and W' is not -H, alkyl, aralkyl, or alicyclic;

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

each R^4 is independently selected from the group consisting of -H, alkyl, and aryl, or together R^4 and R^4 are connected via 2-6 atoms, optionally including one heteroatom selected from the group consisting of O, N, and S;

R^6 is selected from the group consisting of -H, lower alkyl, acyloxyalkyl, aryl, aralkyl, alkoxycarbonyloxyalkyl, and lower acyl, or together with R^{12} is connected via 1-4 carbon atoms to form a cyclic group;

R^7 is lower R^3;

each R^9 is independently selected from the group consisting of -H, alkyl, aralkyl, and alicyclic, or together R^9 and R^9 form a cyclic alkyl group;

R^{11} is selected from the group consisting of alkyl, aryl, $-NR^2_2$, and $-OR^2$; and

each R^{12} and R^{13} is independently selected from the group consisting of H, lower alkyl, lower aryl, lower aralkyl, all optionally substituted, or R^{12} and R^{13} together are connected via 2-6 carbon atoms to form a cyclic group;

each R^{14} is independently selected from the group consisting of $-OR^{17}$, $-N(R^{17})_2$, $-NHR^{17}$, and $-SR^{17}$;

R^{15} is selected from the group consisting of –H, lower aralkyl, lower aryl, lower aralkyl, or together with R^{16} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{16} is selected from the group consisting of $-(CR^{12}R^{13})_n$-C(O)-R^{14}, lower alkyl, lower aryl, lower aralkyl, or together with R^{15} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

each R^{17} is independently selected from the group consisting of lower alkyl, lower aryl, and lower aralkyl, or together R^{17} and R^{17} on N is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{18} is lower R^2;

R^{19} is selected from the group consisting of –H, and lower acyl;

n is an integer from 1 to 3;

with the provisos that:

1) when X^3, X^4, or X^5 is N, then the respective J^3, J^4, or J^5 is null;

2) when R^5 is furanyl, then at least one of J^2, J^3, J^4, and J^5 is not –H or null;

3) when R^5 is not furanyl, then at least two of J^2, J^3, J^4, and J^5 on formula I(a) or J^2, J^3, J^4, J^5, and J^6 on formula I(b) are not –H or null;

4) when G^2, G^3, or G^4 is O or S, then the respective J^2, J^3, or J^4 is null;

5) when G^3 or G^4 is N, then the respective J^3 or J^4 is not halogen or a group directly bonded to G^3 or G^4 via a heteroatom;

6) if both Y groups are $-NR^6$-, and R^1 and R^1 are not connected to form a cyclic phosphoramidate, then at least one R^1 is $-(CR^{12}R^{13})_n$-C(O)-R^{14};

7) when L is –alkylcarbonylamino- or -alkylaminocarbonyl-, then X^3, X^4, and X^5 are not all C;

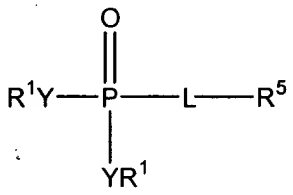
8) when R^5 is phenyl, then J^3, J^4, and J^5 is not purinyl, purinylalkylene, deaza-purinyl, or deazapurinylalkylene;

9) R^1 can be selected from the lower alkyl only when the other YR^1 is $-NR^6-C(R^{12}R^{13})_n-C(O)-R^{14}$;

10) when L is 1,2-ethynyl, then X^3 or X^5 cannot be N;

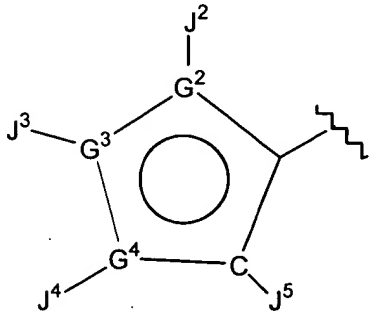
and pharmaceutically acceptable salts thereof.

70. (New) A compound of formula (I):



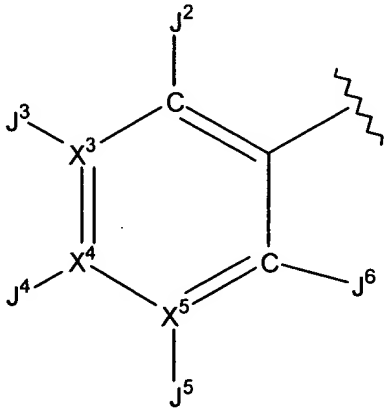
(I)

wherein R^5 is selected from the group consisting of:



I (a)

and



I (b)

wherein:

G^2 is selected from the group consisting of C, O, and S;

G^3 and G^4 are independently selected from the group consisting of C, N, O, and S;

wherein only one of G^2, G^3, and G^4 may be O, or S, and at most one of G^3 and G^4 is N, and at least one of G^2, G^3, and G^4 is C;

X^3, X^4, and X^5 are independently selected from the group consisting of C and N, wherein no more than two of X^3, X^4, and X^5 may be N;

J^2, J^3, J^4, J^5, and J^6 are independently selected from the group consisting of $-CONR^4_2$, $-CO_2R^3$, halo, $-S(O)_2NR^4_2$, $-S(O)R^3$, $-SO_2R^3$, alkyl, alkenyl, alkynyl, alkylaryl, perhaloalkyl, haloalkyl, aryl, heteroaryl, alkylene-OH, $-C(O)R^{11}$, $-OR^{11}$, -alkylene-NR^4_2, -alkylene-CN, -CN, $-C(S)NR^4_2$, $-OR^2$, $-SR^2$, $-N_3$, $-NHC(S)NR^4_2$, and $-NR^{18}COR^2$;

L is selected from the group consisting of:

i) a linking group having 2-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –furanyl-, -thienyl-, -pyridyl-, -oxazolyl-, -imidazolyl-, -pyrimidinyl-, –pyrazinyl-, and -alkynyl-, all of which may be optionally substituted; and

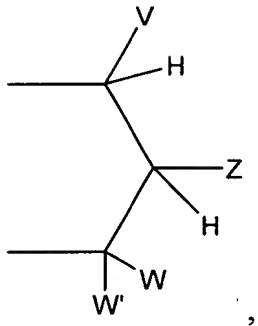
ii) a linking group having 3-4 atoms measured by the fewest number of atoms connecting the carbon of the aromatic ring and the phosphorus atom and is selected from the group consisting of –alkylcarbonylamino-, -alkylaminocarbonyl-, -alkoxycarbonyl-, -alkoxy-, and –alkoxyalkyl-, all of which may be optionally substituted;

Y is independently selected from the group consisting of -O-, and $-NR^6$-;

when Y is -O-, then R^1 attached to -O- is independently selected from the group consisting of -H, alkyl, optionally substituted aryl, optionally substituted heterocycloalkyl where the cyclic moiety contains a carbonate or thiocarbonate, optionally substituted -alkylaryl, $-C(R^2)_2OC(O)NR^2_2$, $-NR^2$-C(O)-R^3, $-C(R^2)_2$-OC(O)R^3, $-C(R^2)_2$-O-C(O)OR^3, $-C(R^2)_2OC(O)SR^3$, -alkyl-S-C(O)R^3, -alkyl-S-S-alkylhydroxy, and -alkyl-S-S-S-alkylhydroxy,

when one Y is $-NR^6$-, and R^1 attached to it is $-(CR^{12}R^{13})_n$-C(O)-R^{14}, then the other Y is selected from the group consisting of $-NR^{15}R^{16}$, $-OR^7$, and NR^6-$(CR^{12}R^{13})_n$-C(O)-R^{14};

or when either Y is independently selected from -O- and $-NR^6$-, then together R^1 and R^1 are -alkyl-S-S-alkyl- to form a cyclic group, or together R^1 and R^1 are



wherein

V, W, and W' are independently selected from the group consisting of -H, alkyl, aralkyl, alicyclic, aryl, substituted aryl, heteroaryl, substituted heteroaryl, 1-alkenyl, and 1-alkynyl; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group containing 5-7 ring atoms, optionally 1 heteroatom, substituted with hydroxy, acyloxy, alkoxycarbonyloxy, or aryloxycarbonyloxy attached to a carbon atom that is three atoms from both Y groups attached to the phosphorus; or

together V and Z are connected via an additional 3-5 atoms to form a cyclic group, optionally containing 1 heteroatom, said cyclic group is fused to an aryl group at the beta and gamma position to the Y adjacent to V;

together V and W are connected via an additional 3 carbon atoms to form an optionally substituted cyclic group containing 6 carbon atoms and substituted with one substituent selected from the group consisting of hydroxy, acyloxy, alkoxycarbonyloxy, alkylthiocarbonyloxy, and aryloxycarbonyloxy, attached to one of said carbon atoms that is three atoms from a Y attached to the phosphorus;

together Z and W are connected via an additional 3-5 atoms to form a cyclic group, optionally containing one heteroatom, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

together W and W' are connected via an additional 2-5 atoms to form a cyclic group, optionally containing 0-2 heteroatoms, and V must be aryl, substituted aryl, heteroaryl, or substituted heteroaryl;

Z is selected from the group consisting of $-CHR^2OH$, $-CHR^2OC(O)R^3$, $-CHR^2OC(S)R^3$, $-CHR^2OC(S)OR^3$, $-CHR^2OC(O)SR^3$, $-CHR^2OCO_2R^3$, $-OR^2$, $-SR^2$, $-CHR^2N_3$, $-CH_2$aryl, -CH(aryl)OH, $-CH(CH=CR^2_2)OH$, $-CH(C\equiv CR^2)OH$, $-R^2$, $-NR^2_2$, $-OCOR^3$, $-OCO_2R^3$, $-SCOR^3$, $-SCO_2R^3$, $-NHCOR^2$, $-NHCO_2R^3$, $-CH_2$NHaryl, $-(CH_2)_p-OR^{19}$, and $-(CH_2)_p-SR^{19}$;

p is an integer 2 or 3;

with the provisos that:

a) V, Z, W, W' are not all -H; and

b) when Z is $-R^2$, then at least one of V, W, and W' is not -H, alkyl, aralkyl, or alicyclic;

R^2 is selected from the group consisting of R^3 and -H;

R^3 is selected from the group consisting of alkyl, aryl, alicyclic, and aralkyl;

each R^4 is independently selected from the group consisting of -H, alkyl, and aryl, or together R^4 and R^4 are connected via 2-6 atoms, optionally including one heteroatom selected from the group consisting of O, N, and S;

R^6 is selected from the group consisting of -H, lower alkyl, acyloxyalkyl, aryl, aralkyl, alkoxycarbonyloxyalkyl, and lower acyl, or together with R^{12} is connected via 1-4 carbon atoms to form a cyclic group;

R^7 is lower R^3;

each R^9 is independently selected from the group consisting of -H, alkyl, aralkyl, and alicyclic, or together R^9 and R^9 form a cyclic alkyl group;

R^{11} is selected from the group consisting of alkyl, aryl, $-NR^2_2$, and $-OR^2$; and

each R^{12} and R^{13} is independently selected from the group consisting of H, lower alkyl, lower aryl, lower aralkyl, all optionally substituted, or R^{12} and R^{13} together are connected via 2-6 carbon atoms to form a cyclic group;

each R^{14} is independently selected from the group consisting of $-OR^{17}$, $-N(R^{17})_2$, $-NHR^{17}$, and $-SR^{17}$;

R^{15} is selected from the group consisting of –H, lower aralkyl, lower aryl, lower aralkyl, or together with R^{16} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{16} is selected from the group consisting of $-(CR^{12}R^{13})_n-C(O)-R^{14}$, lower alkyl, lower aryl, lower aralkyl, or together with R^{15} is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

each R^{17} is independently selected from the group consisting of lower alkyl, lower aryl, and lower aralkyl, or together R^{17} and R^{17} on N is connected via 2-6 atoms, optionally including 1 heteroatom selected from the group consisting of O, N, and S;

R^{18} is lower R^2;

R^{19} is selected from the group consisting of –H, and lower acyl;

n is an integer from 1 to 3;

with the provisos that:

1) when G^3 or G^4 is N, then the respective J^3 or J^4 is not halogen or a group directly bonded to G^3 or G^4 via a heteroatom;

2) if both Y groups are $-NR^6-$, and R^1 and R^1 are not connected to form a cyclic phosphoramidate, then at least one R^1 is $-(CR^{12}R^{13})_n-C(O)-R^{14}$;

3) when L is –alkylcarbonylamino- or -alkylaminocarbonyl-, then X^3, X^4, and X^5 are not all C;

4) when L is –alkoxyalkyl-, and X^3, X^4, and X^5 are all C, then neither J^3 nor J^5 can be substituted with an acylated amine;

5) when R^5 is phenyl, then J^3, J^4, and J^5 is not purinyl, purinylalkylene, deaza-purinyl, or deazapurinylalkylene;

6) R^1 can be selected from the lower alkyl only when the other YR^1 is $-NR^6-C(R^{12}R^{13})_n-C(O)-R^{14}$;

7) when R^5 is phenyl and L is 1,2-ethynyl, then J^3 or J^5 is not a heterocyclic group;

8) when L is 1,2-ethynyl, then X^3 or X^5 cannot be N;

and pharmaceutically acceptable salts thereof.